

1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--STRUCTURAL CHANGES IN MACROMOLECULES OF
POLY,4,VINYL,N,ISOANYLPYRIDINIUM BROMIDES -U-
AUTHOR-(05)-KIRSH, YU.E., BESSMERTNAYA, L.YA., TORCHILIN, V.P., PAPISOV,
I.M., KABANOV, V.A.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 603-6 (CHEM)
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--MACROMOLECULE, POLYMER, VINYL COMPOUND, PYRIDINE, BROMINATED
ORGANIC COMPOUND, ELECTROPHORESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/0695 STEP NO--UR/0020/70/191/003/0603/0606
CIRC ACCESSION NO--AT0125367
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0125367

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE ALKYLATION OF
POLY(4,VINYLPYRIDINE) WITH ISOAMYL BROMIDE GAVE
POLY,(4,VINYL,N,ISOAMYLPRIDINIUM BROMIDE) (I) CONTG. VARIOUS AMTS.
(ALPHA) OF THE TERTIARY N ATOMS. THE CHANGES OF THE INTRINSIC VISCOSITY
OF I IN WATER (OBTAINED BY EXTRAPOLATION OF THE REDUCED VISCOSITY (ETA)
AT I CONCN. LESS THAN 0.01 G-DL. ONLY, SINCE ABOVE THAT CONCN, ETA
BEGINS TO DECREASE) INDICATE THAT I MOLS. COIL UP AT THE LOW ALPHA
VALUES, BECOMING SMALLEST AT ALPHA 12.2PERCENT, AND THEN BEGIN TO UNCOIL
WITH ALPHA INCREASE LESS THAN OR EQUAL TO 40PERCENT. THESE RESULTS WERE
CONFIRMED ALSO BY THE CHANGES OF I ELECTROPHORESIS RATE WITH ALPHA.
FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 681.325

TSOKANOV, V. V., TORCHIN, A. L., PUSHKAREV, V. G.

"A Converter Which Transforms Code to Pulse Repetition Frequency"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 5, Feb 71, Author's Certificate No 293296, Division H, filed 16 May 69, published 15 Jan 71, pp 177-178.

Translation: This Author's Certificate introduces a converter which transforms code to pulse repetition frequency. The device contains a reference frequency oscillator, a code-to-analog converter, a frequency comparison circuit, a controllable frequency divider which consists of a counter and discharge diodes, and a recording signal shaper. As a distinguishing feature of the patent, the operating frequency range of the converter is extended by incorporating circuits for coincidence of "ones" and "zeros" and a zeroing signal shaper. The output of the "ones" coincidence circuit is connected to the input of the zeroing signal shaper and to one of the inputs of the frequency comparison circuit, and the output of the "zeros" coincidence circuit is connected to the input of the recording signal shaper.

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CIA-RDP86-00513R002203320010-8

TORCHINSKIY, A. M.

CORRELATION BETWEEN GENERAL TOXIC, EMBRYOTOXIC, AND TERATOGENIC ACTION OF FOREIGN CHEMICALS AND POSSIBILITY OF FORECASTING THEIR EFFECT ON FETUS; ONDREJ VONDRÁK

UDC: 625.27.3.065.616-007.605.1

55569

Academy of Medical Sciences, Moscow; Moscow, USSR
 Nauk. SSSR, Kuznetsov, No. 2, 1972, pp 39-46]

Analysis of works dealing with the teratogenic properties of chemical agents leading to the organism indifference that extrapolation of the results of experimental investigations to other species of animals, let alone man, involves major difficulties. One of the chief causes for this is the difference in species-specific and line-specific sensitivity of experimental animals to the teratogenic action of the same agent. As a result the experimental findings (even those obtained on different animal species) often do not permit accurate enough evaluation of the degree of danger of the agent under study to man, especially if this agent was administered in small doses and developmental anomalies were noted only in isolated fetuses. For this reason, in order to obtain precise enough data, the method of conducting the experiment and of evaluating the results obtained is very important. In the last few years several works have appeared in the literature (A.P. Osborn et al.; Haezler; Tuchman-Duplessat). The results of investigations pursued in the Laboratory of poiticide toxicology of the Institute of Nutrition, USSR Academy of Medical Sciences, make it possible to consider the question of correlation between general toxic, embryotoxic, and teratogenic action of foreign chemical agents as it relates to the above mentioned.

The investigators the effect of polycidion of the carcinome group, benzo(a) and seven, on embryogenesis of Mstard albino rats. Polycidion is a new and, apparently, promising pesticide. Its LD₅₀ for rats, according to our data, is over 10,000 mg per kg of body weight. Different authors have investigated the teratogenic action of being on dogs, mongrel albino rats, hamsters, rabbits, and Guinea pigs, and contradictory results were obtained. For this reason it was interesting to investigate its influence on embryogenesis of Mstard rats and to compare the results with the data of other

10RCHINSKIY, A. M.

MINERAL COMPOSITION OF THE RAT'S ARTIFICIAL DIET

Article by A.I. Stenbely, A.M. Torchinskii, Institute of Nutrition, USSR Academy of Medical Sciences, Moscow; Moscow, Vsesoyuznyi Nauchno-Issledovatskiy Institut Meditsinskikh Nauk SSSR, Moscow, No 2, 1972, pp 47-52]

UDC: 57.082.2

JPRS 55548
27 MAR 72

In experimental investigations on animals, artificial mixtures are often used as a special diet, consisting of casein, sugar, vegetable oil, vitamins, and salt compositions. Minerals which are biologically important are added to the animals' diet in the form of a mineral mixture consisting of different salts constituting 2-6 percent of the total weight of the ration. At the present time, diverse mineral salt mixtures that have been proposed at different times are used. Table 1 submits the composition of the mixtures most commonly used for the last few years in experimental research.

It can be noted that there are differences in quantities mainly of such elements as calcium, phosphorus, iodine, while the calcium/phosphorus ratio ranges from 0.65 to 4.2. The roster of essential elements in the mixtures also varies, since new data have appeared in recent years about the biological role of such elements as selenium, molybdenum, cobalt, and others. After analyzing the data in the current literature, we used them as the basis for a mixture which, in our opinion, should adequately meet animal requirements with regard to minerals.

According to the literature (A.O. Vayner; Gutherston; McCoy; Spectori; Potaschum, sodium, magnesium, manganese, chlorine, iodine, iron, copper, zinc, selenium, and sulfur. Relatively recently studies have been published indicating the biological role of molybdenum, however, there are not enough data to describe it completely from the biological point of view and to determine the requirements for rats. For this reason, we included it in the mixture as an optional element. In the following we shall discuss the need for each element included in the mixture we propose and we shall evaluate the elements that were included formerly but that we did not use (cobalt, fluorine, aluminum) in the proposed mixture.

TORCHUN, N. M.

5065
6-73

XIV-9. STUDY OF THE MORPHOLOGY OF THE GROWTH OF EPITAXIAL FILMS BY THE
ELECTRON DIFFRACTION METHOD

Article by E. I. Poludin, S. B. Serebrennikov, N. M. Torchun, Yu. A. Ikhart, Yu. S. Smolits, Kiev: Novosibirsk, Ill. Sibirskiy na Protsessam Kozh i Sin, Izv. Poluprovodnikov Khim. i Fiz., Krasnodar, 12-17 June 1972, p 2001

In this paper it was demonstrated that the electron-microscopic study of the film surface by the replica method can turn out to be inadequate to obtain unique conclusions regarding the morphology and mechanical growth of a film. The most complete information about the growth process is given by the complex use of electron diffraction and electron microscopy in different stages of growth beginning with thicknesses of several tens of atomic layers. The application of the indicated methods to the study of epitaxial films of germanium on substrates of silicon and gallium arsenide permitted detection of the morphological peculiarities of the film growth.

TORCHUN, N.M.

5725 59805
6-73

XVI-13. HOLD OF VACUUM CONDITIONS DURING THE DEPOSITION OF SILICON FILMS ON SAPPHIRE

Article by A. V. Spash, V. Ye. Rozemko, N. N. Torzhov, O. N. Gladilov, K. V. Kiselev, L. I. Stepanov po Protsessam i Sinteza Poluprovodnikov, Trudy Akad. Nauk SSSR, 12-17 June 1972, p. 232

Of the three basic parameters (temperature, growth rate and vacuum) determining the properties of semiconductor films, the last is the least investigated. The purpose of this paper is to study the structural and electrical properties of monocrystalline silicon films on sapphire as a function of the vacuum conditions during deposition.

The silicon films on sapphire were deposited in the vacuum range of $1 \cdot 10^{-3}$ to $5 \cdot 10^{-8}$ torr in oil and oilless pumping systems. The deposition was carried out by two methods: with high temperature nucleation. The deposition was carried out by two methods: with high temperature nucleation and with fixed substrate temperature. The structural (reflection diffraction patterns, rocking curves, type of double crystal spectrometer) and electrical (specific resistance, type of conductivity, mobility of the current carriers) characteristics of the films were measured. Analogous experiments were performed with the silicon-silicon homoepitaxial system.

By comparing the results of these experiments the conclusions were drawn regarding minimum effect of the vacuum when applying films according to the conditions with high-temperature nucleation and causes leading to worsening of the film characteristics.

USSR

UDC 546.43:23:539.238

SVECHNIKOV, S. V., SHTRUM, YE. L., KLOCHKOV, V. P., ZIL'YALOVA, L. I.
and TORCHUN, M. M., Institute of Semiconductors, Academy of Sciences USSR

"Monocrystalline Layers of Cadmium Selenide"

Moscow, Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol 7,
No 12, Dec 71, pp 2146-2149

Abstract: This paper concerns the study of the specific properties of a single-crystal layer grown on a substrate. The experimental layer of hexagonal and a mixture of hexagonal and cubic modifications was produced by vacuum deposition of cadmium selenide on mica substrates in a quasi-closed space. The morphology of the deposited layer indicates that the surface growth of cadmium selenide layers is formed by hexagonal pyramids or triangles and hexagons. Three basic types of pyramids are observed: pyramids with pointed apices and flat lateral faces, stepped pyramids, and truncated pyramids. A correlation was revealed between the dimensions of the grown shapes and their electric conductivity. Both the resistivity and photosensitivity of the layers increase with the increasing cross section of the pyramids. The photosensitivity of single-crystal layers comprising cubic and hexagonal modifications of CdSe is higher than that of layers with hexagonal modifications. (1 illustrations, 10 bibliographic references)

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USSR

UDC 539.26+539.234

KLOCHKOV, V. P., GRIGOR'YEV, O. N., POLUDIN, V. I., SOLDATENKO, N. N., TORCHIN, N. N., TKHORIK, YU. A.

"Obtaining and Studying the Germanium-Silicon Heterosystem"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 24-30

Abstract: A study was made of the heteroepitaxial growth and degree of perfection of germanium films deposited from a molecular beam in a vacuum on substrates made of silicon. The previously obtained results for the Ge-GaAs system [A. P. Klimenko, et al., Protsessy rosta i struktura nanokristalliches-kikh sloev poluprovodnikov, Part 1, Nauka Press, Novosibirsk, 478, 1968] are presented for comparison. The indicated systems were used as models of hetero-junctions in which the semiconductor pairs are either very close with respect to crystallographic parameters (Ge-GaAs) or these parameters are essentially different (Ge-Si). The crystal structure, mechanism of nucleation and growth and structural defects are studied. The mechanism of occurrence of twins in the germanium films on (100) silicon is discussed. On GaAs substrates in the initial stages of nucleation there is a tendency toward the formation of flat (platelike) nuclei, the tangential growth rate of which turns out to be appreciably higher than the normal growth rate. The germanium films have a
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LOCHIKOV, V. P., et al., Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 24-30

mosaic structure. The data on the angles of disorientation of the films and substrates obtained from the corresponding rocking curves confirm the conclusions obtained from topographic studies: the film growing on the surface of the crystal is not only distorted itself, but it distorts the substrate.

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USSR

UDC 539.26+539.432

KLOCHKOV, V. P., GRIGOR'YEV, O. N., POLUDIN, V. I., SOLDATENKO, H. N., TORCHIN, N. M., and TIKHONIK, Yu. A.

"Preparing and Investigating Germanium-Silicon Heterosystems"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No. 6, 1971, pp 24-30

Abstract: Experiments are described for investigating the hetero-epitaxial growth and quality of germanium films deposited on silicon substrates by a molecular beam in a vacuum. The results obtained by these experiments are compared with those found earlier in experiments with Ge-GaAs systems used as models of heterojunctions made of semiconductor pairs with very similar crystallographic parameters, such as Ge-GaAs, or very different parameters, such as Ge-Si. The method of diffraction of fast electrons in reflection and electron microscopy, as well as double crystal spectrometry and x-ray topographical pictures by the Berg-Barrett method are used. The temperature of the silicon substrates varied from 240 to 800° C and the condensation rate from 3 to 4000 Å per second. The vacuum was maintained in the limits of 1 to $5 \cdot 10^{-5}$ mm Hg and the film thickness varied from tens of angstroms to tens of microns. The authors are connected with the Semiconductor Institute, Ukrainian Academy of Sciences.

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USSR

UDC 621.383:546.48'23

CAVRILENKO, N. V., KLOCHKOV, V. P., SVECHNIKOV, S. V., and TORCHUK, N. M., Institute of Semiconductor, Academy of Sciences Ukrainian SSR

"Photoelectric Properties of Epitaxial Layers of $CdS_x \cdot Se_{1-x}$ "

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 10, Oct 70, pp 1787-1791

Abstract: The article describes results of a study of the photoelectric and electric properties of photosensitive layers of $CdS_x \cdot Se_{1-x}$ solid solutions ($x = 1, 0.9, 0.7, 0.5, 0.3, 0.1$) 5-20 microns thick, obtained by deposition from a molecular beam in a vacuum of the order of $5 \cdot 10^{-5}$ torr. Electron-diffraction and X-ray studies showed that at substrate temperatures of 350-420° C single-phase monocrystalline layers of CdS , $CdS_x \cdot Se_{1-x}$, $CdSe$ with photocurrent maximums in the 510-720 nm region grow on mica. It was found that there is practically no difference between the photoelectric and electric parameters of the single-crystal layers and those of volume single crystals of the solid solutions.

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USSR

UDC 546.47'22:54 - 162.2

GRIGOR'YEV, G. N., IL'CHISHIN, V. A., KLOCHKOV, V. P., and TORCHUN, N. M., Institute of Semiconductors, Academy of Sciences Ukrainian SSR

"The Crystalline Structure of Electroluminescent Zinc Selenide Films"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 9, Sep 70, pp 1561-1563

Abstract: The literature contains no data on the structural properties of ZnSe films obtained by the two-step method, viz., evaporation of the substance on a cold substrate with subsequent heat treatment. The present article studies the effect of the following on the crystalline structure of ZnSe films: atmosphere, temperature and duration of heat treatment, the presence of a conducting layer (In_2O_3 , SnO_2) on the glass substrate, the thickness of the ZnSe film and various activators (Cu, Mn). The batch of Zn and Se was selected in such a way that at different annealing temperatures the Zn and Se vapor pressure was 0.5 and 1 atm, respectively. Annealing temperature varied from 300 to 650° C in 50° C intervals, annealing time one hour. Elec-

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USSR

GRIGOR'YEV, O. N., et al., Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 9, Sep 70, pp 1561-1563

tron-diffraction and roentgenographic studies were made of the crystalline structure of the resultant ZnSe films.

The results indicate that annealing without an activator in vapors of a metal or metalloid has no appreciable effect on the phase composition of the initial films. When copper is introduced as activator, annealing in zinc vapors contributes to the formation of the hexagonal modification; annealing in selenium vapors contributes to the cubic modification. With an increase in the film thickness a transition is observed from films containing cubic-modification crystals to only hexagonal-modification films. The transition from crystals of cubic modification to hexagonal modification results from errors in the application of the layers. Orientation of the crystals of hexagonal modification improves with increased thickness.

The authors thank N. A. VLASENKO for his advice and for discussing the results.

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1/2 029
UNCLASSIFIED
PROCESSING DATE--20NOV70
TITLE--POLYTYPISM AND LOW TEMPERATURE PHOTOLUMINESCENCE OF SILICON CARBIDE
SINGLE CRYSTALS -U-
AUTHOR--(04)--LISITSA, M.P., KRASNOV, YU.S., SERGEYEV, O.T., TORCHUN, N.M.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERD. TELA 1970, 12(4), 1290-2
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--LOW TEMPERATURE EFFECT, PHOTOLUMINESCENCE, SILICON CARBIDE,
SINGLE CRYSTAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1259 STEP NO--UR/0181/70/012/004/1290/1292
CIRC ACCESSION NO--AP0124910
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124910

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT.

SPECTRA OF LOW TEMP.

PHOTOLUMINESCENCE WERE INVESTIGATED OF N TYPE CRYSTALS GROWN BY
SUBLIMATION AND DOPED WITH N IN CONC. OF 5 TIMES 10 PRIME17-2 TIMES 10
PRIME18 CM NEGATIVE PRIME3 AT 20 AND 77DEGREEK. AT 20DEGREEK THE
SPECTRUM OF EACH POLYTYPE (4H, 8H, 27H, 15R AND 21R) CONSISTS OF
OVERLAPPING BANDS. INCREASE IN TEMP. TO 77DEGREEK DECREASES THE
INTENSITY OF LUMINESCENCE AND CAUSES THE APPEARANCE OF ADDNL. BANDS.
THE STRONGEST QUENCHING OF PHOTOLUMINESCENCE FOR ALL POLYTYPES OCCURS IN
THE INTERVAL 100-150DEGREEK.

FACILITY: INST. POLUPROV., KIEV,
USSR.

UNCLASSIFIED

USSR

UDC 676.809.4

~~TORDZHYAN, I. KH.~~, and KATS, L. N., Institute of Epidemiology and Micro-
biology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Moscow

"Localization of Dehydrogenase Activity in the Cells of Obligate Anaerobic
Bacteria"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 4, Dec 70, pp 969-971

Abstract: Ultrastructural cytochemistry was used to localized dehydrogenases in two types of anaerobic bacteria: Cl. sporogenes No 324 and Cl. oedematiens No 198. Two indicators of dehydrogenase activity were used as artificial hydrogen acceptors; tetranitro blue tetrazolium and potassium telluride. It was determined that for Cl. sporogenes the indicator is reduced primarily in the cytoplasm outside the membrane structure; in the membrane structure and in cytoplasm membrane reduction occurs to a lesser extent. With Cl. oedematiens, indicator reduction occurs exclusively in the cytoplasm. In this case the membrane structures do not participate in dehydrogenase organization.

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USSR

UDC 577.153

BRESTKIN, A. P., ROZENCART, E. V., SOBOLEVA, I. N., KHRONOV-BORISOV, N. V.,
INDENBOM, M. L., TIKHONOVA, L. N., ABDUVAKHABOV, A. A., and TOREMURATOV, K.,
Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenova,
Academy of Sciences USSR, Institute of Experimental Medicine, Academy of
Medical Sciences USSR, Leningrad, and Tashkent State University imeni V. I.
Lenin

"Unproductive Bonding of Cholinesterase Substrate"

Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972, pp 717-720

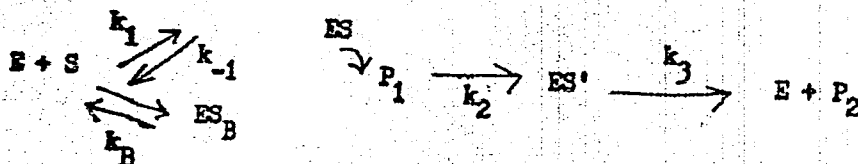
Abstract: Experiments have shown that the rate-limiting step in the Michaelis-Menton substrate reaction is the acylation or deacylation rather than the initial formation of the Michaelis complex. The specificity of the cholinesterase is also determined by the latter steps in the reaction and it is only the L optical isomer of acetyl- β -methylcholine which is hydrolyzed by the acetylcholinesterase. The D isomer is an inhibitor at it is adsorbed on the active sites but not subsequently removed. The system can be generalized as follows:

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BRESTKIN, A. P., et al., Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972, pp 717-720



where E is the enzyme; S, the substrate; ES, the Michaelis complex; ES', the acylating enzyme; ES_B, the unproductive complex; and P₁ and P₂, the products of the reaction - alcohols and acids. The general implications of differences in the relative magnitudes of k₁, k₋₁, k₂, k₃, and k_B are presented. Actual data are given for five substrates.

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USSR

UDC 947.94

TOREMURATOV, K., ABDUVAKHADOV, A. A., ASLANOV, Kh. A., and SADYKOV, A. S.,
Tashkent State Univeristy imeni V. I. Lenin

"New Phosphorus-Containing Esters of N(β -ethoxy)-anabasine and Lupinine"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 6, 1970, pp 772-773

Abstract: Phosphorus esters of N(β -ethoxy)-anabasine and lupinine are synthesized in a search for cholinolytics: (N(β -ethyl-0-diphenylphosphonyl)-anabasine, methylsulfomethylate of N(β -ethyl-0-diphenylphosphonyl)-anabasine, N(β -ethyl-0,0-isoamylmethylthiophosphonate)-anabasine, 0-diphenylphosphonyl lupinine, and iodomethylate of 0-diphenylphosphonyl lupine. Some of the physicochemical constants of these esters are tabulated.

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1/2 011
UNCLASSIFIED
TITLE--APPARATUS FOR PURIFYING STEAM GAS DISCHARGES -U- PROCESSING DATE--02OCT70
AUTHOR--(05)-MAKSIMOV, V.F., TOBE, A.I., ISYANOV, L.M., PASECHNIK, S.P.,
LESOKHIN, V.B.
COUNTRY OF INFO--USSR
SOURCE--BUM. PROM. 1970, (2) 20-1
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--SULFUR, INDUSTRIAL FURNACE, AIR POLLUTION CONTROL, AIR
PURIFICATION EQUIPMENT, STEAM BOILER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/1372
CIRC ACCESSION NO--AP0107845
STEP NO--UR/0329/70/000/002/0020/0021
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107345

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. WHEN THE SMELT FROM A SODA RECOVERY FURNACE IS DISSOLVED (IN WEAK WHITE LIQUOR), A CONSIDERABLE AMT. OF A MIXT. OF STEAM AND GAS IS EVOLVED. THE MIXT. IS DISCHARGED INTO THE ATM. THROUGH AN EXHAUST PIPE AND CONTAINS SOLID PARTICLES ENTRAINED BY THE FLOW, WHICH CAUSE POLLUTION. THE APP. DESCRIBED WAS DESIGNED TO PURIFY THE MIXT. FROM THE ENTRAINED PARTICLES AND ALSO FROM GASEOUS S COMPONENTS. FROM THE TANK CONTG. THE SOLN., THE STEAM GAS MIXT. GOES TO A SCRUBBER CONSISTING OF A MIXING TUBE AND A GRAVITY CONDENSATE TRAP. THE WEAK WHITE LIQUOR FROM THE CAUSTICIZATION ROOM IS PUMPED, AT 1.5-2 BARS, INTO THE LOWER CONE OF THE CONDENSATE TRAP, WHERE THE LIQUOR USED FOR SPRAYING THE MIXING TUBE ALSO COLLECTS. THE LIQUOR FED IS CONTROLLED BY VALVES, AND A DEFINITE VOL. OF WEAK WHITE LIQUOR CIRCULATES CONTINUOUSLY THROUGH THE APP. THE APP. REMOVES 95PERCENT OF THE SOLID PARTICLES, AND NEARLY 100PERCENT OF THE S COMPS.

UNCLASSIFIED

USSR

BRITOV, G. S., TORGASHEV, V. A.

"Use of Functional Coding and Systems of Residual Classes to Increase the Reliability of Computers"

Informatsionnye Materialy. Nauch. Sovet po Kompleks. Probl. "Kibernetika" AN SSSR [Information Materials Scientific Council on the Complex Problem "Cybernetics" Academy of Sciences USSR], No 3(50), 1971, pp 75-78, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V501 by V. Mikheyev).

Translation: A method is described for using functional coding and systems of residual classes (SRC) to increase the reliability of a digital computer, consisting of the following. Suppose a problem of the form

$$y_1 = f_1(x_1, \dots, x_m)$$

$$\dots$$

$$y_n = f_n(x_1, \dots, x_m)$$

is solved on a digital computer in SRC $p_1, \dots, p_k$. The probability of correct operation of the machine in solution time T is evaluated as $p_0(T) = 1/2$

USSR

BRITOV, G. S., TORGASHEV, V. A., Informatsionnye Materialy. Nauch. Sovet po Kompleks. Probl. "Kibernetika" AN SSSR, No 3(50), 1971, pp 75-78.

$=p^k(T)$, where $p(T)$ is the probability of correct operation of an individual module in time T ; k is the number of modules. By introduction of an additional function according to a code with the test condition $\sum_{i=1}^{n+1} y_i = 0$ and one addition module p_{k+1} , the problem is reduced to the form

$$\begin{aligned} y_1 &= f_1(x_1, \dots, x_m) \\ &\dots \dots \dots \\ y_n &= f_n(x_1, \dots, x_m) \\ y_{n+1} &= f_{n+1}(x_1, \dots, x_m) \\ \sum_{i=1}^{n+1} y_i &= 0. \end{aligned}$$

When errors appear, the test condition of the functional code is disrupted and the solution is repeated with the modules successively switched out. As soon as the defective module is switched out, the test condition of the functional code is fulfilled and the solution is output with less accuracy.

USSR

UDC 547.26'118

KHASKIN, B. A., TORGASHEVA, N. A., and MEL'NIKOV, N. N., All Union Scientific Research Institute of Chemical Plant Protective Agents

"Reactions of Phosphorus Containing Disulfides. Reaction of Bis(dialkoxy- and Diarylhydroxythiophosphoryl)disulfides With Hydrazines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, p 2083

Abstract: Reaction of bis(dialkoxy- and diarylhydroxythiophosphoryl) disulfides with phenylhydrazine carried out at room temperature in ether or benzene solution yields phenylhydrazinium salts of O,O-dialkyl and O,O-diaryldithiophosphoric acid. In contrast to this, reactions with N,N-dimethylhydrazine yield dimethylammonium salts of O,O-dialkyldithiophosphoric acid.

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USSR

UDC 547.26'118

KHASKIN, B. A., MEL'NIKOV, N. N., and TORGASHEVA, N. A., All Union Scientific Research Institute of Chemical Plant Protective Agents

"Reactions of Phosphorus Containing Disulfides. I. Reaction of Bis-(dialkoxy- and Diaryloxythiophosphoryl)disulfides With Primary Amines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1916-1918

Abstract: The reaction of bis(dialkoxy- and bis(diarylhydroxythiophosphoryl)-disulfides with primary aliphatic amines was investigated. It was shown that this reaction is a new method for the synthesis of thiophosphorylsulfene-N-alkylamides. This reaction is relatively fast at room temperature in organic solvents, yielding quantitative amounts of product. The structure of the products was confirmed by independent syntheses and PMR and IR spectroscopy.

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1/2 009
UNCLASSIFIED
PROCESSING DATE--30OCT70
TITLE--REACTION OF MANGANESE II CHLORIDE WITH TRIPOTASSIUM AND TRISODIUM
ORTHOPHOSPHATES -U-
AUTHOR-(03)-GOLOSHCHAPOV, M.V., MARTYSENKO, B.V., TORGASHIN, YU.Y.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 670-3
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ELECTRICAL CONDUCTIVITY, AQUEOUS SOLUTION, MANGANESE CHLORIDE,
SODIUM PHOSPHATE, POTASSIUM COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1994/1730
CIRC ACCESSION NO--AP0115559
STEP NO--UR/0078/70/015/003/0670/0673
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0115559

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. MNCL SUB2-M SUB3 PD SUB4-H SUB2 O
(M EQUALS K OR NA) SYSTEMS WERE STUDIED AT 25DEGREES BY SOLY., AND BY PH
AND ELEC. COND. DETNS. OF AQ. SOLNS. THE SOLIDS WERE INVESTIGATED
THERMOGRAVIMETRICALL.. THE SYSTEMS FORM MNKPD SUB4.H SUB2 O (M.
1275DEGREES) AND MNNAPD SUB4. PRIME2 H SUB2 O (M. 1025DEGREES), RESP.
FACILITY: VORONEZH. GOS. PEDAGOG. INST., VORONEZH. USSR.

UNCLASSIFIED

USSR

TORGAYEV, V.

"Electronics Serving Health"

Moscow, Moskovskaya Pravda, 12 Nov 70, p 4

Abstract: Twenty different parameters of the human organism can be measured with the "Kordinatsiya" system of instruments, which is being developed by a small group of young scientists, headed by engineer Georgiy Semenov, in the Division of Medical Metrology of the All-Union Scientific Research Institute of Physico-Technical and Radio-Engineering Measurements. "Kordinatsiya" was initially developed for the Institute of Physical Culture, which wanted a device to determine the capacities of athletes. It operates with sensors and electrodes placed on various parts of the subject's body. They produce readings of current expenditure and capacities. These readings are fed into a Minsk-22 computer, which has stored previous readings for the subject, plus average and optimum values. The computer prepares them, reports on progress, and points out weaknesses and types of training needed to overcome the weaknesses. At the present time, the group is adjusting and tuning the system, in preparation for experiments on subjects working out on training devices. In the future, interesting areas of use are foreseen. For example, the system may be used to evaluate the condition of seriously ill persons during

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USSR

TORGAYEV, V., Moskovskaya Pravda, 12 Nov 70, p 4

operations and in the postoperative period. This will involve computer comparison of readings with known limits and critical values. There would be almost instantaneous notice of the approach of dangerous situations. Such systems, it is felt, will also be used to study the work process, determining efficient work loads, rest time, and so forth. In fact, the area of use of such systems seems unlimited.

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019

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--THERMAL DECOMPOSITION OF SILVER SULFATE DIAMMONIATE -U-

AUTHOR--(02)--TORONSKAYA, T.I., PAVLYUCHENKO, M.M.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS, SSR, SER. KHIM, NAVUK 1970, (1), 5-11

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL DECOMPOSITION, SILVER COMPOUND, SULFATE, ACTIVATION
ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1813

CIRC ACCESSION NO--AP0118777

STEP NO--UR/0419/70/000/001/0005/0011

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118777

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THERMAL DECOMPN. OF (AG(NH
SUBE)SUB2)SUB2 SO SUB4 (1) PROCEEDS ACCORDING TO THE FOLLOWING: (AG(NH
SUB3)SUB2)SUB2 SO SUB4 IN EQUILIBRIUM AG SUB2 SO SUB4 PLUS 4NH SUB3. I,
WHICH HAS BEEN SUBJECTED TO THERMAL TREATMENT, DECOMPS. AT A
SIGNIFICANTLY HIGHER RATE THAN THE ORIGINAL PREPN. THE CHARACTER OF THE
KINETIC CURVES DOES NOT DEPEND UPON THE CONDITIONS OF THE PRELIMINARY
TREATMENT OF THE AMINE. THE REACTION BEGINS WITH THE MAX. RATE, WHICH
WITH TIME DECREASES TO ZERO. THE KINETICS OF THE THERMAL DECOMPN. IN A
VACUUM IS SATISFACTORILY DESCRIBED BY THE EQUATION $1 - (1 - \exp(-k_1 t))$
A)PRIME113 EQUALS $k_1 T$ AND A EQUALS $1 - \exp(-k_1 t)$ PRIME NEGATIVE k_1 SUB1 T
PRIME WHERE N IS CONGRUENT TO 1. THE ACTIVATION ENERGY AND THE
PREEXPONENTIAL FACTOR, WHICH ARE CALCD. WITH THE AID OF THE RATE
CONSTS., HAVE CLOSE VALUES. FACILITY: BELORUSS, GOS. UNIV. IM.
LENINA, MINSK, USSR.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70
C SUB18 SERIES -U-

TITLE--ESTROGENIC ACTIVITY OF SOME STEROIDS OF THE C SUB18 SERIES -U-
AUTHOR--(04)-TORGOV, I.V., CHERNYAVSKAYA, N.A., SEQAL, G.M., BARKOV, T.I.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 2,
PP 208-213
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ESTROGEN, ESTRADIOL, ESTER, MOLECULAR STRUCTURE, HYDROGEN
BONDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1997/0124

STEP NO--UR/0216/70/000/002/0208/0213

CIRC ACCESSION NO--AP0119120

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119120

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. ESTROGENIC ACTIVITY OF SOME ESTRADIOL DERIVATIVES POSSESSING ELECTROPHILIC SUBSTITUENTS IN THE RING A, ESTRENDIOLS WITH THE DOUBLE BOND IN DIFFERENT POSITIONS, ESTRADIOL ESTERS AND 15,16,DEHYDROESTRONE HAS BEEN STUDIED ACCORDING ALLEN DOISY METHOD. IT HAS BEEN SHOWN THAT IN SOME CASES EVEN INSIGNIFICANT CHANGES IN THE MOLECULE OF A NATURAL ESTROGEN (FOR INSTANCE FLATTENING OF THE D RING OR THE CHANGE OF THE HYDROXYL POSITION IN THE RING A) CAUSES A DECREASE OF ESTROGENIC ACTIVITY. ONLY A STRICTLY DEFINITE DISTRIBUTION OF ELECTRON DENSITIES IN THE HORMONE MOLECULE AS WELL AS ITS CONFORMATIONAL PROPERTIES GUARANTIES HIGH AFFINITY TOWARDS THE RECEPTOR. INTRODUCTION OF SUBSTITUENTS INTO THE 2 AND THE 4 POSITION CAUSES A COMPLETE LOSS OF ESTROGENIC ACTIVITY OF THE MODIFIED MOLECULE DUE TO A STERIC HINDRANCE OR OWING TO A POSSIBLE FORMATION OF INTRAMOLECULAR HYDROGEN BONDS WITH THE PHENOL HYDROXY GROUP. FACILITY: INSTITUTE FOR CHEMISTRY OF NATURAL PRODUCTS, ACADEMY OF SCIENCES USSR.

UNCLASSIFIED

USSR

UDC 621.396.969.18

MAYZEL'S, Ye. N. (Deceased) and ~~TORGOVANOV, V. A.~~

"Measurement of Dispersion Characteristics of Radar Targets"

Izmereniye kharakteristik rasseyaniya radiolokatsionnykh tseley, Moscow, Izd-vo "Sovetskoye radio," 1972, edited by M. A. Kolosov, 232 pp.

Translation: Most of the dispersion characteristics of complex radar targets are measured by polygons or in echo-less chambers.

This book proposes measurement methods and equipment for determining the characteristics of radar targets, and presents various forms of modeling with uhf, coherent light waves, and ultrasonic radiation. A great deal of attention is given to the analysis of measurement errors. New methods of measurement are examined, including equipment with broad-band signals, open resonators, and the like.

The book is designed for electronics engineers, scientific personnel, electron physicists, and VUZ students specializing in radio wave propagation, radar design, and radio wave measurement.

Twelve tables, 164 illustrations, 75-title bibliography.
1/6

USSR

MAYZEL'S, Ye. N. and TORGOVANOV, V. A., Izmereniye kharakteristik rasseyaniya radiolokatsionnykh tseley, Moscow, Izd-vo "Sovetskoye radio," 1972, 232 pp.

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 - 1.2. Physical phenomena in radio wave interpretation
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 - 1.4. Dispersion matrix
 - 1.5. Dispersion diagram
 - 1.6. Application of the dispersion diagram
 - 1.7. Phase measurement
- Bibliography

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- 2.1. General remarks
 - 2.2. Electrodynanic modeling

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USSR

MAYZEL'S, Ye. N. and TORGOVANOV, V. A., Izmereniye kharakteristik rasseyaniya radiolokatsionnykh tseley, Moscow, Izd-vo "Sovetskoye radio," 1972, 232 pp.

- 2.3. Modeling with waves in the visible range
Measuring average EDF values using incoherent oscillations
Modeling with coherent radiation sources in the visible range (lasers)

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Chapter 3. Methods of Forming Quasi-Planar Fields

- 3.1. Types of field used in measurements
- 3.2. Investigating fields used in measuring equipment
EDF diagram of a film with a wave of constant phase and periodically varying amplitude incident on it
EDF diagram of a film with a wave of constant amplitude and periodically varying phase incident on it
A method of expanding the EDF diagram into "moments"
EDF diagram of a film with a wave of random phase distribution incident on it
- 3.3. Measuring the EDF diagram in the far zone of a radiating antenna

USSR

MAYZEL'S, Ye. N. and TORGOVANOV, V. A., Izmereniye kharakteristik rasseyaniya radiolokatsionnykh tseley, Moscow, Izd-vo "Sovetskoye radio," 1972, 232 pp.

- Measurement error of a unidimensional diffuser
- Measurement error of two-dimensional (planar) diffusers as a function of distance
- 3.4. Measuring the EDF diagram in the intermediate antenna zone
- 3.5. Measuring the EDF diagram with collimating devices
- Collimator edge effects
- Optimal collimator dimensions for specified manufacturing accuracy
- 3.6. Measuring field amplitudes and phases, and collimator power supplies
- Investigating the field of incident waves
- Investigating the field of dispersed waves using a passive reflecting probe

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Chapter 4. Methods for Suppressing Parasitic Dispersion, and Echo-less Chambers

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USSR

MAYZEL'S, Ye. N. and TORGOVANOV, V. A., Izmereniye kharakteristik rasseyaniya radiolokatsionnykh tseley, Moscow, Izd-vo "Sovetskoye radio," 1972, 232 pp.

- 4.1. Parasitic dispersion sources in laboratory measurements
- 4.2. Radio-absorbing materials for echo-less chambers
- 4.3. Principles of the echo-less chamber
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 - Computing the dimensions of the longitudinal corrugation cross section
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- 4.6. References for measured objects

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- 5.1. Classification of equipment and measurement methods
- 5.2. Computing the energy potential and dynamic range of measurement equipment
- 5.3. Measurement equipment with continuous radiation
- 5.4. Measuring device with frequency modulation

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USSR

MAYZEL'S, Ye. N. and TORGovanov, V. A., Izmereniye kharakteristik rasseyaniya radiolokatsionnykh tseley, Moscow, Izd-vo "Soverskoye radio," 1972, 232 pp

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- 5.9. Basic parameters of measurement devices

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- 6.4. Experimental methods for attesting to standard diffusers
- 6.5. Tests for measurement equipment
- 6.6. Standard diffusers for calibrating radar stations

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USSR

UDC 621.396.67.001.57

MIROVITSKIY, D. I., YELAGINA, N. M., ~~TORGovanov, V. A.~~ CHERKUNOVA, G. P.
"Quantitative Analysis of Cartographic Radiation Patterns in Optical
Modeling of Antennas"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1946-1950

Abstract: Photometric methods are used to analyze the photographic images of cartographic radiation patterns of antennas in the short-range, intermediate and long-range zones obtained by exposing diaphragms of various shapes (models of large antenna systems) to a coherent light beam. A photometric measurement procedure is worked out as well as a method of making the diaphragms. Evaluations obtained for antennas with circular, square and triangular apertures showed that the measurement error for the optical modeling method in long-range and short-range side lobes is ± 0.5 and ± 2 dB respectively. Five figures, bibliography of ten titles.

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Acc. Nr.: AP0040408

Ref. Code: UR 0109

USSR

UDC 621.317.34-621.317.74 JPRS 5248

MIROVITSKIY, D. I., TORGOVANOV, V. A. and CHERKUNOVA, G. P.

"Optical Modelling of Microwave Reflection and Scattering"

Moscow, AN SSSR, Radiotekhnika i Elektronika, Vol 15, No 1, 1970,
pp 38-50

Abstract: This article describes in detail an experimental study of optical modelling methods of reflection and scattering of radio microwaves. The characteristics of the method and the calibration techniques for measuring instruments are outlined. The apparatus and techniques for measuring radar diagrams of planar and volume diffusers using the helium-neon and argon optical quantum generators are described. A vibration-proof stand and procedures for a photometric processing of measuring data, which are described here, made it possible to study the reflection and scattering cartographic diagrams of planar and volume diffusers with scale and nonscale modelling, and to obtain the averaged diffusion diagrams, which

Reel/Frame

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AP0040408

are in good agreement with theoretical data. The round, triangular and square metallic polished plates were used as planar diffusors, while the metallic cylinders, spheres and cones, as well as their combinations presented in a photo, were used as volume diffusors. The experimental data in the form of diffusion diagrams are presented and discussed. Orig. art. has 9 figures.

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USSR

UDC 621.317.34-621.317.74

MIROVITSKIY, D. I., TORGOVANOV, V. A. and CHERKUNOVA, G. P.,
"Optical Modelling of Microwave Reflection and Scattering".

Moscow, AN SSSR, Radiotekhnika i Elektronika, Vol 15, No 1, 1970,
pp 38-50

Abstract: This article describes in detail an experimental study of optical modelling methods of reflection and scattering of radio microwaves. The characteristics of the method and the calibration techniques for measuring instruments are outlined. The apparatus and techniques for measuring radar diagrams of planar and volume diffusers using the helium-neon and argon optical quantum generators are described. A vibration-proof stand and procedures for a photometric processing of measuring data, which are described here, made it possible to study the reflection and scattering cartographic diagrams of planar and volume diffusers with scale and nonscale modelling, and to obtain the averaged diffusion diagrams, which are in good agreement with theoretical data. The round, triangular and square metallic polished plates were used as planar diffusers, while the metallic cylinders, spheres and cones, as well as their combinations presented in a photo, were used as volume diffusers. The experimental data in the form of diagrams, tables and photographs are presented and discussed.

USSR

UDC 620. 193.41

TORGOVITSKAYA, S. B., and ZHUK, N. P., Zhdanov Metallurgical
Institute

"Influence of Arsenic in Steel on its Corrosion Behavior in
Hydrochloric Acid"

Moscow, Zashchita Metallov, Vol 7, No 2, Mar-Apr 71, pp 170-174

Abstract: The dependence of the mean corrosion rate of steel in 0.2N HCl on the arsenic content in steel has a maximum. Steel with 0.60% As is corroded more slowly with a test duration of over 9 hours than steel without arsenic. In 6N HCl, the mean rate of corrosion of steels is decreased with increasing arsenic content. The As contained in steels is dissolved in the HCl as they are corroded and, depending on the concentration of As and HCl in the solution, either facilitates or hinders the cathode and anode processes of steel corrosion.

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USSR

TORGOVITSKIY, I. SH., SHAPOCHNIK, YA. L.

UDC 51

"Some Problems Arising in the Dencentralized Method of Systems Control"

V sb. Detsentralizovan. metody upr. (Decentralized Methods of Control--collection of works), Moscow, 1972, pp 126-133 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V379)

No abstract

1/1

- 31 -

METALLURGY

JAS 61321, 20 Feb. 74

METALLURGICAL FEATURES OF PLASMA-ARC REMELTING OF HIGH-ALLOYED STEELS IN WATER-COOLED COPPER CRISTALLIZER

Article by N. Ye. Ponomarev, I. Lakovskiy, S. F. Topolov, V. A. Syzhanov, Moscow, Planting of Processes in Metallurgy, Metallurgiya, 1973, pp 110-112

The purpose of all modern special electrothermometallurgical processes is to reduce the concentration of impurities in the metal and produce a high-quality ingot.

The means by which this goal can be accomplished are few. The number can be reduced to the following four [1]:

- 1) Inert gases and slags;
- 2) Increase the temperature of the metal;
- 3) Vacuum;
- 4) Recrystallization of the metal.

Plasma-arc remelting (PAR) is a process that makes it possible to use the largest number of means of refining metal.

In this method, in contrast to electroslag (ESR), vacuum-arc (VA) and electron beam (EBR) remelting, the main technological agent for acting on the liquid metal is the gas phase.

Research and industrial experience in the use of PAR show that of the many versions of the method the following four are most commonly used:

1. Refining remelting in an inert gas atmosphere.
2. Remelting, combined with plasma-hydrogen deoxidation of the metal.
3. Plasma-arc remelting with slag.
4. Remelting, combined with nitrogen saturation of steel.

USSR

UDC 669.15'24:669.014.623

POMARIN, YU. M., GRIGORENKO, G. M., LAKOMSKIY, V. I., TORKHOV, G. F., and
SHEREVERA, A. V., Kiev

"On the Solubility of Nitrogen in Iron-Nickel Melts"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 4, Jul/Aug 72, pp 32-36

Abstract: The solubility of nitrogen in iron, nickel, and iron-nickel alloys with 21.5% Ni and 59.0% Ni was experimentally investigated by the method of smelting the metal in an electromagnetic field in a gas flow (Ar, N, He) with subsequent hardening. The N solubility in Fe was investigated in the 1870-2860°K temperature interval, and in Fe-Ni alloys in the interval from the melting point to 2500°K. The temperature dependences of N solubility in Fe, Ni, and Fe-Ni alloys and the effect of Ni concentration in Fe-Ni alloys on the N heat of solution are shown. The temperature dependences of the N interaction parameter for Fe-Ni alloys are compared with data of other authors. The N solubility in Fe-Ni alloys was found to comply with the square root principle. An analytical expression was derived for the dependence of N solubility on the temperature and the Ni concentration in the Fe alloy. Five illustrations, one table, three formulas, twelve bibliographic references.

1/1

USSR

UDC 621.396.69:621.318.4

TORLIN, G. M., BAGULIN, R. A., RAKHLIN, I. N.

"Problem of Selecting the Parameters of an Inductance with Toroidal Ferro-magnetic Cores"

Materialy II Nauchno-tekhn. konferentsii Kramatorsk. n.-i. i proyektnotekhnol. in-ta mashinostr. -- V sb., 1969 (Materials of the Second Scientific and Technical Conference of Kramatorsk Scientific Research and Design Technology Institute of Machine Building -- collection of works, 1969), Kramatorsk, 1970, pp 132-133 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4V509)

Translation: It is recommended that experimentally obtained graphs of the frequency corresponding to the maximum Q-factor as a function of the number of turns be used to calculate coils. The technique and equipment for obtaining the graph data are presented. There is 1 illustration and a 3-entry bibliography.

USSR

GOLENKO, D. I., LIVSHITS, S. Ye., TORNOPOL'SKIY, Yu. Ya., YAROKER, Ya. N.
"Study of ϵ Networks in Statistical Modeling Processes"

Tr. Leningr. Inzh.-Ekon. In-ta [Works of Leningrad Institute of Economics Engineering], 1972, No 94, pp 43-50 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V273, by B. Granovskiy).

Translation: Set M in compact metric space K is called an ϵ network in K if for any point $t \in K$ there is a point $t' \in M$ which is not more than ϵ distant from t . If m is the minimum number of points necessary to construct an ϵ network in a certain set $A \cap K$, the number $H = \log_2 m$ is called the ϵ entropy of A . As we know, the ϵ entropy of the set can be used to estimate the accuracy of tabulation, integration, as well as various procedures of optimization of function F , continuous in K , using the corresponding ϵ network. The problem thus arises of constructing a sequence of points $\{x_i\}_{i=1}^n$, $x_i \in K$, the ϵ entropy of which with any n is near the maximum possible. In this work for the case $K = [0, 1]$, a comparison is given of regular and probabilistic methods of production of an ϵ network from this standpoint. The regular method consists in construction of

USSR

Golenko, D. I., Livshits, S. Ye., Tornopol'skiy, Yu. Ya., Yaroker, Ya. N.,
Tr. Leningr. Inzh.-Ekon. In-ta, 1972, No 93, pp 43-50.

sequences of equally separated points in $[0, 1]$, the probabilistic method consists in construction of sequences formed by values of a random quantity, evenly distributed in $[0, 1]$. One new method is suggested for construction of an ϵ network, the ϵ entropy of which increases strictly with increasing number of points.

USSR

UDC 612.014.42

VALYEYEV, U. S., OSYENNIY, O. S., TORNUIYEV, YI. V., and RAKYTYANS'KYY, D. F.,
Institute of Physiology of the Siberian Branch of the Academy of Sciences USSR,
Novosibirsk

"The Origin of the External Electric Field Which Is Recorded Around Animals
and Man"

Kiev, Fiziologichnyy Zhurnal, Vol 19, No 1, 1973, pp 99-104

Abstract: Using very sensitive electric equipment, the electric field was recorded around man and animals at a distance of 1 m. The strength of the field increases linearly with the distance decrease between the recording equipment of the animal or human body. The configuration and amplitude of the external electric field differs over different parts of the body. When the air humidity was increased to 50-85%, no electric field was recorded even at a distance of 5 cm from the man's body. The best recordings were obtained at 20-25°C and air humidity of 17-35%. Rubbing of a man's body with a cloth or bare hand increases the electric field even in the presence of high air humidity (45%). In the case of furry animals, the recorded electric field changed synchronously with respiration cycles and heart beats. No electric field was recorded around frogs, even at a distance of 0.5 cm from the body. The electric field around

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USSR

VAYEV, U. S., et al., Fiziologichnyy Zhurnal, Vol 19, No 1, 1973, pp 99-104
animals and man depended on respiration and heart beats. The recorded electric
field is the result of the mechanical activities of living creatures and is
not related to any electrical processes that take place in the living organism.

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ТОКНУЙЕВ, Yu. V.

SPRS 58026
23 April 1973

Article by U. S. Toknuiev, O. S. Ouyunov, Yu. V. Toknuiev, D. F. Babayantskiy: Institute of Physiology, Siberian Branch of the USSR Academy of Sciences, Novosibirsk; Kiev, Pleskionchuk Zhurnal Akademiyi Nauk Ukrayiny, Vol 28, Ukrainian, Vol 19, No 1, 1971, pp 99-106.

The attention of many researchers has been attracted recently by information regarding the presence of an electric field around an isolated nerve appearing first in 1949 [3]. The existence of a magnetic field around a nerve [6] and of electric and magnetic fields around an electric field around man and animals [7] showed that characteristics of the recorded electric field around the human heart at a distance of heart as an electric field generator.

The aim of this work was to study the characteristics of the electric field which can be recorded around biological subjects and to explain its nature.

Methods

The method of recording the external electric field of biological subjects was developed on the assumption that the source of this field is the hypothetical electric dipole located in the volumetric conductor and which produces a difference in potentials that is equal to the QRS wave amplitude on an electrocardiogram.

In order to record the electric field of biological subjects, it is necessary to have very sensitive apparatus (10⁻³ to 10⁻⁴ V). In our experiments we used the electrometric amplifier UI-2 with the input base impedance and the recording device. The maximal sensitivity of the

SPRS: 58026
23 Apr. 1973

-1-

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device between 0.5 Hz and 1 kHz was 10^{-3} V. In several instances, standard band filters were used at the input of the indicating device.

A comparatively high external interference produced by the earth's electric field, other functioning equipment, and the feed screening chamber was in the shape of a cube, with 3-meter sides. The under study was very important, because only in this case would it be possible to observe alternations in the recorded external electric field which originate due to the volumetric asymmetry of the subject with respect to the walls of the screening chamber. For the same reason, all subjects were placed approximately in the center of the chamber in a horizontal position.

Three remote electrometer units of three amplifiers were suspended with special stretchers (suspensions) from the chamber ceiling at different distances from the heart of the subject investigated. This made it possible to record the electric field at three points simultaneously. In addition, it was made possible to record the EXG synchronously with the recording of the electric field. All measuring devices of the amplifiers and the electric field sensors. Leads for the remote units were shielded and the shields were grounded. Leads for the contact

Metal discs 25 mm in diameter served as field sensors, and they were attached to input terminals (contacts) of the electrometer units. Each disc was surrounded by a protective ring which was connected through a resistance with the case of the remote unit. The film constant of this ring was equal to the time constant of the input of the electrometer with the electric field sensor. The disc facing the subject was considered to be the working surface.

The humidity of the surrounding air was recorded simultaneously with the electric field.

The amplifying line was calibrated by placing the field sensor between two plane-parallel plates to which was applied the calibrating pulse, the shape of which resembled that of the field signal.

Frogs, cats, and people were the subjects of study. The electric field was recorded when the subject was grounded, and when there was no contact between the subject and the surrounding leads or the ground. In the second case the EXG was not taken. Figure 1 shows a schematic diagram of the recording unit.

FILE--BUTYL SALICYLATE -U- UNCLASSIFIED
AUTHOR--(04)--YERIKHOV, V.I., VIGDOROV, A.S., TROCHESHNIKOVA, L.Y.,
GORBACHEVA, S.N.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 266,763
REFERENCE--OTKRYITIYA, IZOBRET., PROM. OBRATZSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL PATENT, CHEMICAL SYNTHESIS, ESTERIFICATION, AZETROPE,
SALICYLATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3004/1733
CIRC ACCESSION NO--AA0132004
STEP NO--UR/0482/70/000/000/0000/0000
UNCLASSIFIED

CIRC ACCESSION NO--AA0132004
ABSTRACT/EXTRACT--(U) GP-C-

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT. BU SALICYLATE (I) WAS PREPD. BY
THE ESTERIFICATION OF SALICYCLIC ACID WITH EXCESS BUOH IN THE PRESENCE
OF ACID CATALYSTS AT THE B.P. OF THE REACTION MIXT. AND BY THE
SIMULTANEOUS DISTN. OF AN H SUB2 O BUOH AZEOTROPE. THE SEPN. OF I WAS
SIMPLIFIED BY VACUUM DISTG. AN AZEOTROPE OF I AND UNREACTED SALICYCLIC
ACID WHICH WAS SEPD. BY CRYSTN. AND FILTRATION.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--WIND MEASURING INSTRUMENTS. CERTAIN INVESTIGATIONS -U-

AUTHOR--(02)-TOROCHKOV, V.YU., SURAZHSKIY, O.YA.

COUNTRY OF INFO--USSR

SOURCE--WIND-MEASURING INSTRUMENTS. CERTAIN INVESTIGATIONS
(VETROIZMERITEL'NYYE PRIBORY. NEKOTORYYE ISSLEDOVANIYA) LENINGRAD,
DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--METEOROLOGIC INSTRUMENT, WIND MEASUREMENT, WIND DIRECTION,
WIND VELOCITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605011/D11 STEP NO--UR/0000/70/000/000/0001/0104

CIRC ACCESSION NO--AM0140208

UNCLASSIFIED

2/2 018

CIRC ACCESSION NO--AM0140208

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 3.
FROM AUTHORS 5. CHAPTER I MEASUREMENT OF WIND CHARACTERISTICS 7.
II INSTRUMENTS AND METHODS FOR WIND MEASUREMENTS 35. III EXPERIMENTAL
INVESTIGATIONS 68. APPENDIX. PRINCIPLES OF THE THEORY OF STABILITY
85. BIBLIOGRAPHY 103. ANALYZED ARE METHODOLOGICAL PROBLEMS IN
MEASUREMENT OF VELOCITY AND DIRECTION OF WIND, AS WELL AS INSTRUMENTS FOR
MEASUREMENT OF THESE PARAMETERS. THE BOOK WAS WRITTEN FOR ENGINEERING
TECHNICAL PERSONNEL, PROFESSORS, POST GRADUATE AND COLLEGE STUDENTS OF
HYDROMETEOROLOGICAL INSTITUTES.

UNCLASSIFIED

USSR

UDC: 531.55:521.1

TOROKHOVA, N. I.

"Toward a Theory for an Inertial Guidance System of the Gyrohorizon-Compass Type"

Tr. Sev.-zap. zaoch. politekhn. in-ta (Works of the Northwest Polytechnical Correspondence Institute), 1971, No 14, pp 41-43 (from RZh-Mekhanika, No 5, May 72, Abstract No 5A78)

Translation: The author considers a horizontally stabilized platform carrying gyroscopes and newtonmeters. It is assumed that the object carrying the platform moves arbitrarily over a fixed ellipsoid of revolution encompassing the earth. Conditions are found which must be satisfied by the moments applied to the axes of the gyroscope suspensions by which the platform is maintained in the plane of the horizon. An investigation of small motions of the platform shows that the proposed method of forming moments leads to undamped oscillations of the platform around the vertical. The problem of damping of oscillations is not treated. N. P. Stepanenko.

1/1

USSR

UDC: 616-008.82-074:543.42

CHEKOTILO, V. M., and TOROKHIN, M. D., Uzhgorod Branch Odessa Scientific Research
Institute of Palneology

"Spectrographic Assay of Some Trace Elements in Biological Media"

Moscow, Laboratornoye Delo, No 5, 1970, pp 284-286

Abstract: A variant of spectrography is proposed for assaying zinc, copper, nickel, iron, aluminum, titanium, manganese, silicon and molybdenum in biological material (blood, gastric juice, bile, and organ tissues) in batches of 10 grams. This technique, which includes trace element extraction by the Pohl method, permits rapid assays on many samples and can be used in any laboratory that is equipped with an ISP-28 spark spectral unit, and IG-3 spark generator.

1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SPECTROGRAPHIC DETERMINATION OF SOME TRACE ELEMENTS IN BIOLOGICAL
MEDIA -U-
AUTHOR--(02)--CHEKOTILO, V.M., TOROKHTIN, M.D.
COUNTRY OF INFO--USSR
SOURCE--LAB. DELO 1970, (5), 284-6
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--SPECTROGRAPHY, TRACE ELEMENT, BIOLOGIC CELL, TISSUE FLUID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605015/005 STEP NO--UR/9099/70/000/005/0284/0286
CIRC ACCESSION NO--AP0140596
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--06DEC70

CIRC ACCESSION NO--AP0140596

ABSTRACT/EXTRACT--(U) GP-D- ABSTRACT. THE TRACE ELEMENTS ZN, CU, NI, FE, AL, TI, MN, SI, AND MB OF BIOL. FLUIDS AND TISSUES (SAMPLE WT. ABOUT 10 G) WERE EXTG. AND CONCD. BY THE POHL METHOD (1943) AND DETD. SPECTROGRAPHICALLY. THE RELATIVE ERROR WAS 6.7-9.1 PERCENT. FACILITY: UZHGOROD. FILIAL, ODESS. NAUCH. ISSLED. INST. KURORTOLL, UZHGOROD, USSR.

UNCLASSIFIED

USSR

UDC 669.783.476(088.8)

NIKITINA, A. A., GLUBOKOVA, T. N., and TOROPATSKAYA, N. P., State Scientific Research and Design Institute of Rare Earth Metals Industry

"A Method of Electrolytic Deposition of a Germanium Alloy"

USSR Author's Certificate No 259588, filed 12 Apr 68, published 20 May 70
(from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G175 P)

Translation: A method is proposed for the electrolytic deposition of an alloy of Ge solution based on Ge salt and ammonium oxalate. To ensure uniform Ge-Fe alloy plating, salt Fe and H_2SO_4 is introduced into solution with the following ratio of components (in g/l): Ge (in the form of GeO_2) 0.1-1, Fe (in the form of $Fe_2(SO_4)_3$) 0.1-1, ammonium oxalate 5-10, H_2SO_4 up to pH 1.5, with the process being conducted at temperatures of 25-80°C and D_K of 1-5 a/dm².

1/1

USSR

UDC: 535.399

TOROPETS, A. S., TAGANOV, O. K.

"Concerning the Transmission of Light Through a Rough Surface. I"

Leningrad, Optika i Spektroskopiya, Vol 33, No 3, Sep 72, pp 582-585

Abstract: An investigation is made of the passage of monochromatic light through a rough surface. The specimens were plane-parallel glass plates ground on one surface. The transmitted light was made up of a diffuse component and a directional component. A quantitative expression is found for the intensity of the directional component as a function of the wavelength of the incident light and the cosine of the angle of incidence. The results of experiments show that passage of light through a rough surface reveals the wave properties of light with particular clarity. It is noted that the directional component of the transmitted light has been missed in work by other researchers because of the insufficient angular resolution of the instruments used. There can be no doubt that the directional component is diffraction-interference in nature. The mechanisms responsible for its formation in both the diffraction and interference cases will be dealt with in the next paper of this series.

1/1

- 65 -

USSR

UDC 550.831

TOROPIN, S. I., KAYAK, L. K., KANDEL', YA. M. and YEFREMOV, YU. P.

"A Pendulum for Gravimetric Measurements"

USSR Author's Certificate No 366443, Filed 26 Jul 71, Published 16 Jan 73
(from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7,
Mar (a) 73, Claim No 1636077/26-25)

Translation: A pendulum for gravimetric measurements, containing a shaft with supporting and moving massive carriers, distinguished by the fact that, in order to increase the accuracy of measurement, the shaft is made in the form of a sleeve with a catch also set on one of the carriers.

1/1

- 129 -

USSR

UDC 621.373.530.145.6

RYABOV, A. I., TOPOPKIN, G. N.

"On the Problem of Emission Power Stability in Single-Mode Helium-Neon Lasers"

Elektron. tekhnika. Nauchno-tekhn. sb. Gazorazryadn. pribory (Electronic Technology. Scientific and Technical Collection. Gas-Discharge Devices), 1970, vyp. 1 (17), pp 42-45 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D188)

Translation: It is shown that when a single-mode He-Ne laser is operated under variable ambient temperature (or pressure) conditions, spontaneous modulation of its output power takes place due to the continuous drift of longitudinal modes as a result of the change in the optical length of the resonator. Resumé.

1/1

1/2 046
UNCLASSIFIED
TITLE--FALSE INFORMATION IN A SCANNING INTERFEROMETER SIGNAL -U-
PROCESSING DATE--30OCT70
AUTHOR--(02)-SOLOMAKHA, D.A., TORPOV, A.K.
COUNTRY OF INFO--USSR
SOURCE--OPTIKA I SPEKTROSKOPIIA, VOL. 28, APR. 1970, P. 818-820
DATE PUBLISHED--APR70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--INTERFEROMETER, LASER EMISSION, HELIUM NEON LASER, SIGNAL
DISTORTION, ERROR CORRECTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1223
STEP NO--UR/0051/70/028/000/0818/0820
CIRC ACCESSION NO--AP0124877
UNCLASSIFIED

2/2 046

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124877

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLICATION OF A SCANNING INTERFEROMETER OF PLANE PARALLEL GEOMETRY TO THE INVESTIGATION OF THE EMISSION FROM A HELIUM NEON LASER. PARTICULAR ATTENTION IS GIVEN TO THE POSSIBILITY OF ELIMINATING FALSE INFORMATION CONTAINED IN THE INTERFEROMETER SIGNAL. THE CONDITIONS UNDER WHICH A FALSE SIGNAL IS GENERATED ARE DEMONSTRATED BY EXAMPLES. MEANS OF DETECTING AND ELIMINATING A FALSE SIGNAL ARE EXAMINED, AND RECOMMENDATIONS FOR ELIMINATING A FALSE SIGNAL ARE PROPOSED FOR LASERS OPERATING ONLY IN THE TEM SUB 01 MODE AND IN THE TEM SUB01 AND TEM SUB00 MODES SIMULTANEOUSLY.

UNCLASSIFIED

1/2 043
TITLE—SCANNING INTERFEROMETER WITH SPHERICAL MIRRORS FOR STUDYING HELIUM
PLUS NEON LASER SPECTRA -U-
AUTHOR—(02)—TOROPOV, A.K., TROITSKIY, YU.V.
COUNTRY OF INFO—USSR
SOURCE—PRIB. TEKH. EKSP. 1970, 1, 192-3
DATE PUBLISHED—70
SUBJECT AREAS—PHYSICS
TOPIC TAGS—HELIUM NEON LASER, LASER RADIATION SPECTRUM, LASER MIRROR,
INTERFEROMETER
CONTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—1988/1477
CIRC ACCESSION NO—AP0106233
STEP NO—UR/0120/70/001/000/0192/0193
UNCLASSIFIED

2/2 043
CIRC ACCESSION NO--AP0106233 UNCLASSIFIED PROCESSING DATE--30OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SCHEME AND ALIGNMENT OF A
SIMPL CNSTRUCTION SCANNING INTERFEROMETER WITH SPHERICAL MIRRORS ARE
DESCRIBED. SPECTRA OF HE PLUS NE (λ EQUALS 0.63 MU) OBTAINED WITH
THIS DEVICE ARE GIVEN. FACILITY: SIB. GOS. NAUCH. ISSLED. INST.
METROL., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

UDC 621.373:530.145.6:621.317.17

KURNEVICH, B. A., SAKAYEV, O. O., ~~TOBOPOV, A. K.~~

"A Spectrometer With Interferometer With Spherical Mirrors for Studying Gas Lasers"

Tr. Sib. NII metrol. (Works of the Siberian Scientific Research Institute of Metrology), 1971, vyp. 9, pp 28-35 (from RZh-Radiotekhnika, No 8, Aug 71, Abstract No SD240)

Translation: The paper describes a spectrometer based on a scanning interferometer with spherical mirrors with Q-selection of singular longitudinal modes; the device is not critical to matching with a laser. With respect to simplicity of construction and practical use, it is easily competitive with plane-parallel interferometers. The scanning interferometer is based on a cavity of semi-cofocal geometry. The natural longitudinal modes are selected by means of a circular inner diaphragm. The input mirror of the interferometer is flat to reduce power losses. A necessary condition for matching is coincidence of the optical axes of interferometer and laser. The registered resolution is 15 MHz or less. A. K.

1/1

USSR

UDC 621.373:530.145.6:621.317.17

BUKOVSKIY, B. L., KONCHUKHIDZE, L. A., ~~_____~~, TOROPOV, A. K.

"An Installation for Measuring Laser Wavelengths in the Infrared Region"

Tr. Sib. NII metrol. (Works of the Siberian Scientific Research Institute of Metrology), 1971, vyp. 9, pp 36-41 (from RZh-Radiotekhnika, No 8, Aug 71, Abstract No 8D238)

Translation: An installation is described for measuring the wavelengths of gas lasers in the infrared region of the spectrum with a measurement precision of the order of 10^{-7} . The unit includes a two-beam Michelson interferometer and an electronic device designed for counting interference bands and determining the fractional part of the order of interference. The master emission source is a frequency stabilized gas laser which emits in the visible region of the spectrum (e. g. a helium-neon laser with $\lambda = 0.6328 \mu$) checked by comparison with a wavelength standard on Kr^{86} with an accuracy of $2 \cdot 10^{-8}$. To obtain a measurement precision of more than 10^{-7} , the path difference or duty-cycle frequency can be increased. The device can also be used to compare wavelengths in the visible region of the spectrum. A. K.

1/1

- 67 -

TOROPOV, A.I.

57125 5408
6.73

XVI-7. GROWTH MECHANISMS AND FILM FORMATION OF DEFECTS IN THIN HETEROEPITAXIAL SILICON FILMS BY THE ITC DEPOSITION METHOD

Article by V. P. Pelyayev, N. N. Boyarsin, A. I. Toropov, Ye. A. Klyazlov, A. A. Alexandrov, S. I. Zelenin, Novosibirsk, Novosibirsk, 111 Stepanov po Prosvetnaya Ploshchad (Sverdlovsk Polytechnic Institute) Krasnaya 17 Leninsk, Krasnoyarsk, 12-17 June 1977, p 226)

The methods of highly resolving replicas and electron microscopy of specimens of epitaxial silicon were used to study the surface structure of silicon in the process of the epitaxial film. It is demonstrated that after etching, microprocess, shifting of these stages is observed.

A study was made of the types of defects and their distribution in the film with respect to thickness. The interrelation was established between the configuration of the developed rough surface and the location of the defects. On the growth surface reactions take place which lead to the appearance of coherent interstitial separations with increased carbon concentration and subsequent conversion of them into epitaxial layers of silicon carbide.

Theoretical estimates were made of the epitaxial growth parameters and the elastic stresses arising during transformation of the coherent separations into carbide particles.

Analytical Chemistry

USSR

UDC 632.954:547.495

KUTLUKOVA, U. S., TOROPOV, A. P., and LOZOVATSKAYA, M. A., Tashkent Poly-technical Institute

"Determination of Monuron, Diuron, and Phenuron by the Method of Anode Voltamperometry"

Moscow, Khimiya v Sel'skom Khozyaistve, No 4, 1973, pp 56-58

Abstract: An analytical method is proposed for the determination of monuron, diuron, and phenuron in wetting powders, dusts, granules, and in soil based on polarographic measurements. The methodology was tested on synthetic mixtures of herbicides with known composition. Experimental error is $\pm 3\%$. The method is based on taking a polarographic curve of an aqueous methanolic solution of the agent, determining the concentration from a calibration curve.

Electrochemistry

USSR

UDC 661.143.546.641(088.8)

TOROPOV, N. A., SOKOLOV, A. N., KOLPAKOVA, A. A., TARASOVA, L. YE., Leningrad Technological Institute imeni the Lensovet

"A Method of Synthesizing Quick-Response Cathodoluminescent and Photoluminescent Phosphors"

USSR Author's Certificate No 243758, filed 2 Jun 67, published 14 Dec 71 (from RZh-Khimiya, No 11, Jun 72, Abstract No 111234 P)

Translation: This Author's Certificate introduces a method of synthesizing quick-response cathodoluminescent and photoluminescent phosphors based on lanthanide-activated yttrium compounds by mixing the components of the charge with subsequent sintering. In order to expand the variety of quick-response phosphor compositions with elevated chemical stability and high resistance to electron bombardment, a yttrium silicate is used as the yttrium compound with a $Y_2O_3:SiO_2$ ratio of 1:1-3, and the lanthanide is added in a concentration of 0.5-4 wt.%. Example. The initial raw materials for synthesizing the compositions are: Y_2O_3 containing 99.99% of the base substance (RTU No 1185-64); phosphor grade SiO_2 ; oxides of the lanthanide series CeO_2 , Sm_2O_3 , EuO , Pr_6O_{11} , Er_2O_3 , Tm_2O_3 , etc. or their mixtures. A charge containing 65.2 wt% Y_2O_3 and 1/2

USSR

TORCPOV, N. A., et al., USSR Author's Certificate No 243750, filed 2 Jun 67, published 14 Dec 71 (from RZh-Khimiya, No 11, Jun 72, Abstract No 111234 P)

34.8 wt% silica preintered at temperatures of 1100°C and 800°C respectively is thoroughly mixed and briquetted with subsequent annealing at 1360°C isothermal holding at this temperature for 4 hours. The specimens are slowly cooled and pulverized, and then the oxides of the lanthanide series are added. Briquetted specimens are again annealed with isothermal holding at 1350°C for 2.5 hours. The resultant phosphor, e.g. (1.5 wt. %) cerium activated Y_2O_3 . $2SrO_2$, has blue luminescence with λ_{max} of 410 nm, an emission brightness equal to 140% of that of the industrial phosphor grade A-1 (Al_2O_3 -CeO), and after-glow of the order of 10^{-6} s for a drop in brightness to 5%. N. Sh.

2/2

1/2 021
TITLE--SOLID SOLUTIONS IN THE Y SUB2 SI SUB2 O-CE SUB2 SI SUB2 O SUB7
SYSTEM -U-
AUTHOR-(04)-TOROPOV, N.A., ANDREYEV, I.F., SOKOLOV, A.N., SANZHAREVSKAYA,
L.N.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 519-23
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SOLID SOLUTION, YTTRIUM COMPOUND, SILICON COMPOUND, CERIUM
COMPOUND, OXIDE, IR SPECTROSCOPY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/0841
CIRC ACCESSION NO--AP0118017
STEP NO--UR/0363/70/006/003/0519/0523
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118017

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WITHIN THE COMPN. RANGE Y SUB2 SI SUB2 O SUB7-Y SUB1.8 NEGATIVE CE SUB0.2 SI SUB2 O SUB7, SAMPLES WERE SYNTHESIZED EVERY 0.5 MOLE PERCENT. THE SAMPLES WERE SYNTHESIZED AT 1350-1450DEGREES BOTH IN A REDUCING ATM. AND IN A SILIT FURNACE. THE PHASE COMPN. OF THE PRODUCTS OBTAINED WAS STUDIED BY CRYSTALLO OPTICAL ANAL., AND X RAY DIFFRACTION, AND IR SPECTROSCOPY. THE FOLLOWING CRYST. PHASES WERE PRESENT: SOLID SOLNS. WITH THE STRUCTURES BETA Y SUB2 SI SUB2 O SUB7 (COMPNS. Y SUB2 SI SUB2 O SUB7-Y SUB1.97 CE SUB0.03 SI SUB2 O SUB7), ALPHA Y SUB2 SI SUB2 O SUB7, AND A REGION OF SOLID SOLNS. DESIGNATED AS Y SUB2 SI SUB2 O SUB7 SOLID SOLNS. THE CRYSTAL STRUCTURE OF THE LAST SOLID SOLN. IS APPARENTLY IDENTICAL TO THE I PRIME TYPE STRUCTURE OF THE DIORTHOSILICATES. DUE TO THE WEAK CRYSTN. OF THE SAMPLES PREPD. BY SOLID PHASE SYNTHESIS, THE HOMOGENEITY REGION OF SOLID SOLNS. WITH THE BETA Y SUB2 SI SUB2 O SUB7 STRUCTURE WAS DETD. ON THE BASIS OF IR ABSORPTION SPECTRA. THE ALPHA Y SUB2 SI SUB2 O SUB7 CAN BE PREPD. BY QUENCHING THE SAMPLES AT GREATER THAN 1350DEGREES. THERE IS A REVERSIBLE BETA Y SUB2 SI SUB2 O SUB7 IN EQUILIBRIUM ALPHA Y SUB2 SI SUB2 O SUB7 PHASE TRANSITION AT 1300-1400DEGREES. THE CE SUB2 SI SUB2 O SUB7 M. CONGRUENTLY AT 1770DEGREES AND DOES NOT UNDERGO POLYMORPHIC PHASE TRANSFORMATIONS. THE NS AND THE D. OF THE COMPNS. OF THE SYSTEM WERE DETD. ALSO DETD. WERE THE LIQUIDUS SOLIDUS CURVES FOR THE Y SUB2 SI SUB2 O SUB7-CE SUB2 SI SUB2 O SUB7 SYSTEM. FACILITY: Leningrad. TEKHNOL. INST. IM. LENSIVETA, Leningrad, USSR.

UNCLASSIFIED

1/3 024

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--FORMATION OF METASTABLE PHASES WITH QUARTZ AND BETA EUCRYPTITE TYPE
STRUCTURES DURING THE CRYSTALLIZATION OF SPODUMENE SPINEL SYSTEM GLASSES
AUTHOR--(03)-TOROPOV, N.A., SIRAZHIDDINOV, N.A., RAKHMANBEKOV, N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKADE. NAUK SSSR, NEORG. MATER. 1970, 6(3), 599-600

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--QUARTZ, GLASS CRYSTALLIZATION, LITHIUM, MAGNESIUM OXIDE,
ALUMINUM OXIDE, SILICA, GLASS STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0610

STEP NO--UR/0363/70/006/003/0599/0600

CIRC ACCESSION NO--AP0119524

UNCLASSIFIED

2/3 024

CIRC ACCESSION NO--AP0119524
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT. THE SPODUMENE SPINEL SYSTEM WAS STUDIED IN THE PRESENT WORK IN ORDER TO DET. THE VITRIFICATION REGIONS, AND IN ORDER TO EXPLAIN THE SUCCESSIVENESS OF THE FORMATION OF THE CRYST. PHASES AS A FUNCTION OF THE COMPN., TIME, AND TEMP. OF CRYSTN. TO DET. THE VITRIFICATION REGIONS, THE SPODUMENE SPINEL SYSTEM WAS STUDIED EVERY 5 WT. PERCENT. CHEM. PURE LI SUB2 CO SUB3, MGO, AL SUB2 O SUB3, AND SIO SUB2 SERVED AS THE STARTING MATERIALS. FOR THE PREPN. OF THESE GLASSES THE BATCH OF A GIVEN COMPN. WAS MELTED IN PT CRUCIBLES IN A FURNACE EQUIPPED WITH SILIT HEATING ELEMENTS AT 1450-1550DEGREES. THE CAPABILITY OF THE MELT TO VITRIFY DECREASED WITH INCREASING MGAL SUB2 O SUB4 CONTENT. IN ORDER TO INVESTIGATE THE CRYSTN. PROCESSES, THE SYNTHESIZED GLASSES WERE SUBJECTED TO HEAT TREATMENT AT 750-1200DEGREES IN AN AIR ATM., WITH BEING HELD FOR 1.5-50 HR AT THE FINAL TEMP., WHEREUPON THEY WERE QUENCHED IN AIR. BY USING SEVERAL DIFFERENT TECHNIQUES, THE STARTING TEMP. OF THE CRYSTN. WAS DETD. AS DEPENDENT ON THE COMPN., AND THE PRIMARY AND THE SECONDARY CRYST. PHASES WERE STUDIED AS DEPENDENT ON THE TEMP. AND THE TIME, AS WELL AS THEIR INTERRELATION DURING THE CRYSTN. PROCESS AND IN THE FORMATION OF A FINITE STRUCTURE. A METASTABLE QUARTZ- OR QUARTZLIKE PHASE FORMS AS THE PRIMARY CRYST. PHASE AT THE EARLY CRYSTN. STAGE. WITH INCREASING CRYSTN. TEMP. THE VISCOSITY OF THE GLASS GRADUALLY DECREASES.

UNCLASSIFIED

3/3 024

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119524

ABSTRACT/EXTRACT--THIS RESULTS IN INCREASED MOBILITY OF THE IONS AND THERE
OCCURS SIMULTANEOUSLY A SUBSTITUTION OF THE AL PRIME3 POSITIVE AND LI
PRIME1 POSITIVE ATOMS BY SI PRIME4 POSITIVE IN THE QUARTZLIKE STURCTURE,
THE CHEM. COMPN. OF WHICH TENDS TOWARDS EUCRYPTITE COMPN. THE METASTABLE
PHASE OF THE BETA EUCRYPTITE IS OBSERVED AS THE SECONDARY PHASE DURING
THE CRYSTN. OF THE GLASSES STUDIED. FACILITY: INST. KHIM.
SILIKAT, IM. GREBENSHCHIKOVA, LENINGRAD, USSR.

UNCLASSIFIED

172 007
UNCLASSIFIED
TITLE--MECHANISM OF FORMATION OF DOUBLE ALUMINATES OF RARE EARTHS -U-
PROCESSING DATE--16OCT70
AUTHOR--(02)--TOROPOV, N.A., ISMATOV, A.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 590-1
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ALUMINATE, RARE EARTH COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/0909
STEP NO--UR/0363/70/006/003/0590/0591
CIRC ACCESSION NO--AP0118078
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118078

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DOUBLE ALUMINATES CANDAL SUB3 O SUB7 AND SRLAAL SUB3 O SUB7 WERE PREPD. BY CONVENTIONAL TECHNOLOGY. THE MECHANISM OF FORMATION OF THE RARE EARTH DOUBLE ALUMINATES DIFFERS FROM THE FORMATION OF GEHLENITE CAAL SUB2 SIO SUB7. UPON SINTERING A MIXT. OF CAO, ND SUB2 O SUB3, AND AL SUB2 O SUB3, CORRESPONDING TO THE STOICHIOMETRIC COMPN. OF CANDAL SUB3 O SUB7, AT 1000DEGREES, 2 COMPOS, FORM: CAAL SUB4 O SUB7 AND NDALO SUB3. THE INTERPLANAR SPACINGS FOR THESE COMPOS. WERE CALCD. AFTER SINTERING AT 1200DEGREES FOR 4 HR THERE IS 4PERCENT CHEM. FREE CAO PRESENT. WITH INCREASING FIRING TIME, LINES APPEAR ON THE DIFFRACTION PATTERNS CHARACTERISTIC FOR SILICATES OF THE MELILITE GROUP. TOGETHER WITH THE APPEARANCE OF PEAKS OF CANDAL SUB3 O SUB7 AND NDALO SUB3, DIFFRACTION PEAKS OF CAAL SUB2 O SUB4 APPEAR. HOWEVER, THE INTENSITIES OF THE CAAL SUB4 O SUB7 LINES AND OF THE OXIDES DISAPPEAR OR AT LEAST WEAKEN. AFTER THIS, THE ALUMINATES OF CA AND ND WHICH FORMED SLOWLY INTERACT AND COMPLETE THE FORMATION OF THE DOUBLE CA ND ALUMINATE. THE SYNTHESIS OF SR MELILITES OF RARE EARTH PROCEEDS IN AN ANALOGOUS FASHION. ONLY AT HIGH TEMPS. (1550-650DEGREES) DOES THE COMPD. SRLAAL SUB3 O SUB7 FORM.

FACILITY: INST. KHIM., TASHKENT, USSR.

UNCLASSIFIED

USSR

TOROPOV, N. R.

UDC: 577.4

"Minimizing a System of Boolean Functions in the Class of Dis-junctive Normal Forms With Regard to the Loading Capacity of the Elements"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physicotechnical Institute Affiliated With Tomsk University), 1971, vyp. 62, pp 3-10 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V464)

[No abstract]

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USSR

UDC: 577.4

1

ZAKREVSKIY, A. D., POTTOSIN, Yu. V., ROTKO, V. F., TOROPOV, N. R., YAN-
KOVSKIY, A. Ye.

"Systems and Programs for Synthesizing Discrete Devices. A System for Auto-
matic Synthesis of Discrete Automata"

Inform. materialy. Nauch. sovet po kompleks. probl. "Kibernetika" AN SSSR
(Informational Materials. Scientific Council on the Complex Problem of
Cybernetics, Academy of Sciences of the USSR), 1971, No 7(54) pp 42-62
(from RZh-Kibernetika, No 5, May 72, Abstract No 5V327)

[No abstract]

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SPKS 59308

C-73

H

XII-7. EFFECT OF CRYSTALLIZATION CONDITIONS ON THE ANISOTROPY OF THE GROWTH AND ALLOWING OF GERMANIUM IN GAS TRANSPORT SYSTEMS

Article by L. O. Lavrent'eva, I. S. Zakharenko, V. V. Leonov, S. Ye. Torzhnev, Tomskiy Novosibirsk, III Stremitsun na Proizvestvennoye i Stremitsun na Proizvestvennoye, Krasnoyarskiy i Pribor. Moscow, 12-17 June 1972, p. 101

1. It was previously demonstrated that the anisotropy of the growth rate of germanium in the Ge-Si- H_2 system has a significant feature: the growth rate decreases on deviation from (111) and (110) to (111). It is assumed that this phenomenon is caused by significant difficulties in the cleavage of adatoms in the stage arising on increasing the angle of deflection (Krasnoyarskiy i Pribor [Crystallography], Vol. 15, No. 4, 854, 1970).

2. The study of the anisotropy of the germanium growth rate in the same system in the (111)-(110) range confirmed that the (111) plane actually corresponds to a sharp peak. The appearance of the growth rate peak at first place contradicts the thermodynamic data predicting the minimum growth rate for this plane.

3. In order to discover the reason for the observed law, studies were made of the anisotropy of the growth rate of the germanium in this case differs essentially from the preceding anisotropy. The growth rate from (111) and (110) by a small angle. The growth rate increases on deviation from the faces by an angle of more than 10° . Thus, the significant difficulty of the investigated interval.

4. It is assumed that the cause of the difficulties which arise with the adatom discharge in this stage is adjustment of the surface structure caused by the effect of a number of thermodynamic and kinetic factors.

5. The electron microscope studies of the surface of germanium layers of different orientation confirming the stated proposition were performed.

6. A comparison and analysis of anisotropy of the allowing level in the investigated system are made. The report contains a discussion of the consequences arising from the studies made, and the conclusion is drawn of the necessity of considering additional parameters when calculating the anisotropy of the growth rate in such systems.

Materials
USSR

UDC 539.4.536.453 1

MEKHED, G. N., MINTS, R. S., MALKOV, Yu. S., TOROPOV, V. M., AKIF'YEVA, O. I.

"Investigation of the Mechanical Properties of Type NIAN Alloys in the Cast and Deformed State"

V sb. Protsessy formoizmeneniya met. i splavov (Processes of Deformation of Metals and Alloys--collection of works), Moscow, "Nauka", 1971, pp 122-125 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10V883)

Translation: The mechanical properties (breaking point, relative lateral contraction, relative longitudinal extension) of type NIAN alloys (Ni, Nb, Al) were determined in the temperature range of 20-1100°C by a standard procedure. The resultant data show that the strength decreases monotonically with an increase in testing temperature. The ductility properties of the alloys change little with an increase in temperature up to a certain point, after which they increase noticeably. Adding molybdenum and zirconium to NIAN-2 alloy increases the strength properties of the alloy appreciably throughout the entire temperature range. It was found that deformation increases the strength and ductility of NIAN type alloys. The

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USSR

MEKHED, G. N. et al., Protsessy formoizmeneniya met. i splavov, Moscow, "Nauka", 1971, pp 122-125

breaking point of NIAN-2 alloy at room temperature in the deformed state is 2.5 times the breaking point of the alloy in the cast state. The increase in strength of type NIAN alloys after deformation may be attributed to cold hardening and deformation aging. Authors' abstract.

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USSR

UDC 539.4:536.453

MEKHED, G. N., MINTS, R. S., AKIF'YEVA, O. I., TOROPOV, V. M.

"Flow Curves for Nickel-Base Alloys"

V sb. Protsessy formoizmeneniya met. i splavov (Processes of Deformation of Metals and Alloys--collection of works), Moscow, "Nauka", 1971, pp 140-144 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10V884)

Translation: A study was made of the effect which molybdenum and zirconium have on the mechanical properties of Ni-Nb-Al alloys in the cast state at heat-treat temperatures. The mechanical properties were determined by studying specimens on the MK-20 machine at temperatures of 900, 1000, and 1100°C. From the working diagrams, the maximum tangential stresses τ_{max} and octahedral shear q_n were computed, and flow curves were plotted. The results show that doping nickel-base alloys with Mo and Zr has a favorable effect on the high-temperature strength of these alloys, which may be attributed to the solubility of these elements in each of the structural components of the alloys, and to the refining action of Mo and Zr on the grains of the metal and on the boundaries between them. Authors' abstract.

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USSR

UDC 669.71:669-416:539.4:539.52

DRITS, M. YE., KADANER, E. S., TOROPOVA, L. S., KOP'YEV, I. M.

"Variation of the Strength and Plastic Properties of Aluminum Foil and Sheet Aluminum as a Function of Composition"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 28-32 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 41625)

Translation: A study was made of the dependence of the mechanical properties of Al rolled material A99 2-0.02 mm thick. It was established that the specific properties of the foil (a sharp drop in plasticity and an increase in strength) begin to appear with a thickness of the rolled material of 0.1 mm. A study was made of the dependence of the mechanical properties of the 2 mm sheet and 0.02 mm foil on composition for binary alloys of the Al-Cu, Al-Zn, Al-Mg, Al-Mn, and Al-Ti systems. The properties were determined both in the peened and annealed states. The nature of the dependence of the mechanical properties on the composition is analogous for foil and sheet, but the alloying effect is exhibited appreciably more strongly in the foil. The observed deviations from this relation are connected with the harmful effect of oxidation of the interfaces (internal and external) and the presence of microdefects caused by inclusions of solid and brittle phases. Stress relief of the foil has a cross section.

3 illustrations and a 6-entry bibliography.

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USSR

UDC: 539.385

DRITS, M. YE., KADANER, E. S., KOP'YEV, I. M., TOROPOVA, L. S.
and DEMIDOV, YU. S., Institute of Metallurgy imeni A. A. Baykov,
Academy of Sciences USSR

"Factors Affecting the Fatigue Characteristics of Aluminum
Foil of Various Compositions"

Moscow, Sb. "Ustalost' metallov i splavov". "Nauka" Press,
1971, pp 112-116

Translation: Aluminum foil finds applications in the production of miniature computer membranes operated under cyclic loading conditions. There are almost no data in reference sources on the fatigue strengths of aluminum foil. This study deals with the effect of alloying components on the limited service life of aluminum foil. Ordinary fatigue curves have been plotted for pure A99 aluminum and Al alloy with 4% Zn. The effect of the foil's microgeometry on fatigue properties was studied on foil from Al alloy with 4% Zn. It is shown that the fatigue strength of foil from aluminum alloys depends on: 1) foil composition, governing the presence or absence of internal defects; 2) alloy strength; and 3) the state of internal and external interfaces. (3 illustrations, 4 biblio. ref.; summary)

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USSR

UDC 669.715.22.85.86.296.018.2(088.8)

DRITS, M.Ye., KADANER, E. S., TORPOVA, L. S., KOP'YEV, I.M., DEMIDOV, Yu.S.,
LEYKIN, A. I., YEGOROV, N. I.

"Aluminum-Based Alloy for Foil"

USSR Author's Certificate No. 276420, Filed 13/11/68, Published 16/10/70.
(Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5, 750P).

Translation: This alloy has the following composition (%): Ag 0.75-2, REM 0.1-0.5, Zr 0.05-0.15, impurities < 0.01 , Al remainder, has high σ_B (26 kg/mm²) and high durability and stability of properties with cyclical loading, has good technological properties for rolling to a thickness of 10-20 μ ; the foil has good surface qualities.

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USSR

UDC 669.715.3.85.86.018.29(088.8)

DRITS, M. Ye., KADANER, E. S., TOROPOVA, L. S., KOP'YEV, I. N., DEMIDOV, Yu. S.,
LEYKIN, A. I., YEGOROV, N. I. [Institute of Metallurgy imeni A. A. Baykov]

"Aluminum-Based Alloy for Foil"

USSR Author's Certificate No. 276419, Filed 13/11/68, Published 16/10/70.
(Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5, 1748P).

Translation: The alloy has the following composition (%): Cu 0.5-2.0. at least one of the REM 0.1-0.5 and Zr 0.05-0.15, impurities ≤ 0.01 , remainder Al. The introduction of Cu and the rare and refractory metals increases its physical and mechanical properties. The alloy shows σ_b 30 kg/mm², withstands $30 \cdot 10^6$ cycles without rupture, and can be rolled into a foil 10-20 μ thick.

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USSR

UDC 620.186.5:669.71

DRITS, M. Ye., KADENER, E. S., and TOROPOVA, I. S., Institute of Metallurgy
imeni A. A. Baykov

"Recrystallization of a Foil of Aluminum and Its Alloys"

Moscow, Metallovedeniye, No 5, 1971, pp 49-51

Abstract: A study was made of the effect of Cu, Zn, Ag, Mg, Ce, Nd, mixed metal, Mn, Cr, Ti, and Zr on the recrystallization temperature of a 20- μ -thick aluminum foil, and, for purposes of comparison, of the recrystallization of binary aluminum alloys on 2-mm-thick sheets. Results show the effect of alloying elements on recrystallization temperatures at the beginning and end of the recrystallization. Additions of Zr, Mn, Ti, and Cr most effectively impede the development of recrystallization processes in the foil. Recrystallization processes proceed in the foil much more intensively than in the material of the same composition but of massive cross-section. Two figures, one table, nineteen bibliographic references.

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UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--REACTIONS OF BENZENE WITH IODINE-125 AND ASTATINE-211 FORMED IN
NOBLE GASES AS A RESULT OF K CAPTURE -U-
AUTHOR--(05)-NEFEDOV, V.D., TORPOVA, M.A., KHALKIN, V.A., NORSEYEV, YU.V.,
KUZIN, V.I.
COUNTRY OF INFO--USSR

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ISOTOPE, CHEMICAL REACTION

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UNCLASSIFIED

CIRC ACCESSION NO--AP0128643
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT. THE PRIME125 I AND PRIME211 AT
FORMED AS A RESULT OF K CAPTURE IN PRIME125 XE AND PRIME211 RN, RESP.,
IN CONTACT WITH DEGASSED C SUB6 H SUB6 AT ROOM TEMP. AND IN THE LIGHT,
REACT WITH THE C SUB6 H SUB6; THE ONLY REACTION PRODUCTS ARE PHI AND
ASTATOBENZENE, RESP., BUT IS SIMILAR TO 30PERCENT OF THE AT REMAINS IN
THE AT PRIME(0) FORM AND CANNOT BE EXT. FROM THE C SUB6 H SUB6 BY N H
SUB2 SO SUB4 OR N H SUB2 SO SUB4 SATD. WITH SO SUB2.

UNCLASSIFIED

TECHNICAL TRANSLATION

PSTC-ET-23-401-72

ENGLISH TITLE: WAVELENGTH DEPENDENCE OF ATMOSPHERIC AEROSOL
SCATTERING INDICES.

FOREIGN TITLE: K VOPROSU O ZAVISIMOSTI AEROSOL'NOY INDIKATRISY
PASSEYANIYA V ATMOSFERE OF DILUTY VOLNY

AUTHOR: T. P. Totopova

SOURCE: N/A

Translated for PSTC by ACSI

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USSR

UDC 541.49+547.241

~~TOROPOVA, V. E.~~ CHERKASOV, R. A., SAVEL'YEVA, N. I., SLYUSAR', N. V.,
PUDOVIK, A. N.

"Investigation of Complex Compounds of Dithio Acids of Phosphorus with
Bivalent Nickel and Cobalt Ions, and Application of the Hammett Equation with
 ρ_p Constants to the Complex-Forming Reactions"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1485-1489

Abstract: Complex compounds of dithio acids of phosphorus with bivalent
nickel and cobalt ions were studied. The composition and stability constants
of the complexes were determined in 90% ethanol-water solutions at an ionic
strength of 0.3 and a temperature of 25°C. It was shown that the stability
constants $\log \beta$ of the complexes conform to the Hammett equation with ρ_p
constants -- specific constants of the substituents associated with the
phosphorus atom in the dithio acid molecule. Correlation parameters are
compared for the reaction series of complex compounds of dithio acids of
phosphorus with ions of various metals.

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